

H1129

0054606

Eberline Services
W.O. No. R0-11-075-7555

Bechtel Hanford Inc.
SDG H1129

Case Narrative

Page 1 of 1

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1129 was composed of two other solid samples designated under SAF No. B99-029 with a Project Designation of: 100-KR-4 Pump & Treat-Resin Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on December 22 and 30, 2000.

RECEIVED
MAR 28 2001

2.0 ANALYSIS NOTES

EDMC

2.1 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses

2.2 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.3 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.4 Tritium Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion
Melissa C. Mannion
Program Manager

12/30/00
Date

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

SDG 7555
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1129

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B10NW1	100 KR4	SOLID		R011075-01	B99-029	B99-029-61	11/06/00 10:30
B10NW2	100 KR4	SOLID		R011075-02	B99-029	B99-029-61	11/06/00 10:50
Method Blank		SOLID		R011075-04	B99-029		
Lab Control Sample		SOLID		R011075-03	B99-029		
Duplicate (R011075-02)	100 KR4	SOLID		R011075-05	B99-029		11/06/00 10:50

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 12/30/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

SDG 7555
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract TRC-SBB-207925
 Case no SDG H1129

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7555	B99-029-61	B10NW1	SOLID	100.0			11/08/00 2	R011075-01		7555-001
		B10NW2	SOLID	100.0			11/08/00 2	R011075-02		7555-002
		Method Blank	SOLID					R011075-04		7555-004
		Lab Control Sample	SOLID					R011075-03		7555-003
		Duplicate (R011075-02)	SOLID				11/08/00 2	R011075-05		7555-005

QC SUMMARY

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Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 12/30/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

SDG 7555
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract TRC-SBB-207925
 Case no SDG H1129

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED		QUALI- FIERS			
			BATCH	2σ %	CLIENT	MORE		RE	BLANK	LCS
Alpha Spectroscopy										
U	SOLID	Uranium, Isotopic in Soil	6962-080	5.0	2			1	1	1/1
Beta Counting										
SR	SOLID	Total Strontium in Soil	6962-080	10.0	2			1	1	1/1
TC	SOLID	Technetium 99 in Soil	6962-080	10.0	2			1	1	1/1
Liquid Scintillation Counting										
H	SOLID	Tritium in Soil	6962-080	10.0	2			1	1	1/1

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
 Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

SDG 7555
 Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
 Contract TRC-SBB-207925
 Case no SDG_H1129

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION		MATRIX	COLLECTED		TEST	SUF-				
CUSTODY	SAF No		RECEIVED	PLANCHET		FIX	ANALYZED	REVIEWED	BY	METHOD
B10NW1			R011075-01	7555-001	H		12/07/00	12/22/00	MCM	Tritium in Soil
100 KR4		SOLID	11/06/00	7555-001	SR		12/01/00	12/22/00	MCM	Total Strontium in Soil
B99-029-61	B99-029		11/08/00	7555-001	TC		12/21/00	12/22/00	MCM	Technetium 99 in Soil
				7555-001	U		12/01/00	12/22/00	MCM	Uranium, Isotopic in Soil
B10NW2			R011075-02	7555-002	H		12/07/00	12/22/00	MCM	Tritium in Soil
100 KR4		SOLID	11/06/00	7555-002	SR		12/01/00	12/22/00	MCM	Total Strontium in Soil
B99-029-61	B99-029		11/08/00	7555-002	TC		12/21/00	12/22/00	MCM	Technetium 99 in Soil
				7555-002	U		12/01/00	12/22/00	MCM	Uranium, Isotopic in Soil
Method Blank			R011075-04	7555-004	H		12/07/00	12/22/00	MCM	Tritium in Soil
		SOLID		7555-004	SR		12/01/00	12/22/00	MCM	Total Strontium in Soil
	B99-029			7555-004	TC		12/19/00	12/22/00	MCM	Technetium 99 in Soil
				7555-004	U		12/01/00	12/22/00	MCM	Uranium, Isotopic in Soil
Lab Control Sample			R011075-03	7555-003	H		12/08/00	12/22/00	MCM	Tritium in Soil
		SOLID		7555-003	SR		12/01/00	12/22/00	MCM	Total Strontium in Soil
	B99-029			7555-003	TC		12/19/00	12/30/00	MCM	Technetium 99 in Soil
				7555-003	U		12/01/00	12/22/00	MCM	Uranium, Isotopic in Soil
Duplicate (R011075-02)			R011075-05	7555-005	H		12/08/00	12/22/00	MCM	Tritium in Soil
100 KR4		SOLID	11/06/00	7555-005	SR		12/01/00	12/22/00	MCM	Total Strontium in Soil
	B99-029		11/08/00	7555-005	TC		12/21/00	12/22/00	MCM	Technetium 99 in Soil
				7555-005	U		12/05/00	12/22/00	MCM	Uranium, Isotopic in Soil

COUNTS OF TESTS BY SAMPLE TYPE										
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
H	B99-029	Tritium in Soil	TRITIUM_COX_LSC	2			1	1	1	5
SR	B99-029	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	2			1	1	1	5
TC	B99-029	Technetium 99 in Soil	TC99_TR_SEP_LSC	2			1	1	1	5
U	B99-029	Uranium, Isotopic in Soil	UIISO_PLATE_AEA	2			1	1	1	5
TOTALS				8			4	4	4	20

METHOD BLANK

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 12/30/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

R011075-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7555</u> Contact <u>Melissa C. Marnion</u>	Client/Case no <u>Hanford</u> SDG <u>H1129</u> Case no <u>TRC-SBB-207925</u>
Lab sample id <u>R011075-03</u> Dept sample id <u>7555-003</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>B99-029</u>

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	1420	19	6.2	400		H	1490	60	95	84-116	80-120
Total Strontium	24.3	0.97	0.30	1.0		SR	23.1	0.92	105	82-118	80-120
Technetium 99	235	19	0.70	15		TC	240	9.6	98	80-120	80-120
Uranium 233	9.32	0.94	0.43	1.0		U	9.66	0.39	96	83-117	80-120
Uranium 235	7.49	0.82	0.10	1.0		U	7.85	0.31	95	82-118	80-120
Uranium 238	10.6	1.0	0.41	1.0		U	10.5	0.42	101	83-117	80-120

100-HR-4 Pump & Treat - Resin Smpg.

QC-LCS 36748

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>12/30/00</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

R011075-05

B10NW2

DUPLICATE

SDG <u>7555</u>		Client/Case no <u>Hanford</u> SDG <u>H1129</u>	
Contact <u>Melissa C. Mannion</u>		Case no <u>TRC-SBB-207925</u>	
DUPLICATE		ORIGINAL	
Lab sample id <u>R011075-05</u>	Lab sample id <u>R011075-02</u>	Client sample id <u>B10NW2</u>	
Dept sample id <u>7555-005</u>	Dept sample id <u>7555-002</u>	Location/Matrix <u>100 KR4</u> <u>SOLID</u>	
	Received <u>11/08/00</u>	Collected <u>11/06/00 10:50</u>	
	% solids <u>100.0</u>	Custody/SAF No <u>B99-029-61</u> <u>B99-029</u>	

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	9.25	3.8	5.9	400	J	H	9.04	3.9	6.1	J	2	92
Total Strontium	-0.019	0.096	0.19	1.0	U	SR	-0.052	0.084	0.19	U	-	
Technetium 99	0.212	0.39	1.2	15	U	TC	0.070	0.51	1.5	U	-	
Uranium 233	0.088	0.042	0.032	1.0	J	U	0.055	0.044	0.084	U	46	128
Uranium 235	0.020	0.020	0.039	1.0	U	U	0.013	0.026	0.10	U	-	
Uranium 238	0.038	0.025	0.032	1.0	J	U	0	0.022	0.084	U	200	263

100-HR-4 Pump & Treat - Resin Smpg.

QC-DUP#2 36750

T M A / R I C H M O N D
SAMPLE DELIVERY GROUP H1128

R011075-01

B10NW1

D A T A S H E E T

SDG <u>7555</u>	Client/Case no <u>Hanford</u>	SDG <u>H1129</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R011075-01</u>	Client sample id <u>B10NW1</u>	
Dept sample id <u>7555-001</u>	Location/Matrix <u>100 KR4</u>	<u>SOLID</u>
Received <u>11/08/00</u>	Collected <u>11/06/00 10:30</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B99-029-61</u>	<u>B99-029</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	6.56	3.7	5.9	400	J	H
Total Strontium	SR-RAD	-0.004	0.094	0.20	1.0	U	SR
Technetium 99	14133-76-7	-0.062	0.42	1.4	15	U	TC
Uranium 233	U-233/234	0.094	0.063	0.080	1.0	J	U
Uranium 235	15117-96-1	0.025	0.025	0.097	1.0	U	U
Uranium 238	U-238	0.063	0.042	0.080	1.0	U	U

100-HR-4 Pump & Treat - Resin Smply.

T M A / R I C H M O N D
SAMPLE DELIVERY GROUP H1128

R011075-02

B10NW2

D A T A S H E E T

SDG <u>7555</u>	Client/Case no <u>Hanford</u>	SDG <u>H1129</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>TRC-SBB-207925</u>	
Lab sample id <u>R011075-02</u>	Client sample id <u>B10NW2</u>	
Dept sample id <u>7555-002</u>	Location/Matrix <u>100 KR4</u>	<u>SOLID</u>
Received <u>11/08/00</u>	Collected <u>11/06/00 10:50</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B99-029-61</u>	<u>B99-029</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	9.04	3.9	6.1	400	J	H
Total Strontium	SR-RAD	-0.052	0.084	0.19	1.0	U	SR
Technetium 99	14133-76-7	0.070	0.51	1.5	15	U	TC
Uranium 233	U-233/234	0.055	0.044	0.084	1.0	U	U
Uranium 235	15117-96-1	0.013	0.026	0.10	1.0	U	U
Uranium 238	U-238	0	0.022	0.084	1.0	U	U

100-HR-4 Pump & Treat - Resin Smply.

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/30/00</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

Test U Matrix SOLID
SDG 7555
Contact Melissa C. Mannion

METHOD SUMMARY
URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1129

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	1: Uranium 233	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%)			
			PLANCHET				1+3	2σ	2+3	2σ
Preparation batch 6962-080										
B10NW1	R011075-01		7555-001	0.094 J	U	U				
B10NW2	R011075-02		7555-002	U	U	U				
BLK (QC ID=36749)	R011075-04		7555-004	U	U	U				
LCS (QC ID=36748)	R011075-03		7555-003	ok	ok	ok				
Duplicate (R011075-02)	R011075-05		7555-005	ok J	- U	ok J	232	188	53	63
Nominal values and limits from method										
			RDLs (pCi/g)	1.0	1.0	1.0	100		4	
100-HR-4 Pump & Treat - Resin Smpg.							Averages 232		53	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 6962-080 2σ prep error 5.0 % Reference Lab Notebook 6962 pg. 080																
B10NW1	R011075-01			0.097	1.16			86	109			25	11/30/00	12/01	SS-033	
B10NW2	R011075-02			0.10	1.12			83	109			25	11/30/00	12/01	SS-034	
BLK (QC ID=36749)	R011075-04			0.14	1.00			75	109				11/30/00	12/01	SS-036	
LCS (QC ID=36748)	R011075-03			0.43	1.00			98	109				11/30/00	12/01	SS-035	
Duplicate (R011075-02)	R011075-05			0.039	1.10			89	274			29	11/30/00	12/05	SS-031	
(QC ID=36750)																
Nominal values and limits from method																
				1.0	1.00			20-105	100	100		180				

PROCEDURES REFERENCE UIISO_PLATE_AEA
CP-911 Uranium in Water and Dissolved Sample by
Extraction Chromatography, rev 2
CP-008 Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD MDA 0.16 ± 0.31
FOR 5 SAMPLES YIELD 86 ± 17

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id TMANC
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Report date 12/30/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

Test SR Matrix SOLID
SDG 7555
Contact Melissa C. Mannion

METHOD SUMMARY
TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1129

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Total Strontium
Preparation batch 6962-080					
B10NW1	R011075-01			7555-001	U
B10NW2	R011075-02			7555-002	U
BLK (QC ID=36749)	R011075-04			7555-004	U
LCS (QC ID=36748)	R011075-03			7555-003	ok
Duplicate (R011075-02)	R011075-05			7555-005	- U

Nominal values and limits from method RDLs (pCi/g) 1.0
100-HR-4 Pump & Treat - Resin Smpg.

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL- YZED	DETECTOR
Preparation batch 6962-080 2σ prep error 10.0 % Reference Lab Notebook 6962 pg. 080																
B10NW1	R011075-01			0.20	1.12			95		100		25	12/01/00	12/01	GRB-217	
B10NW2	R011075-02			0.19	1.16			94		100		25	12/01/00	12/01	GRB-218	
BLK (QC ID=36749)	R011075-04			0.22	1.00			93		100			12/01/00	12/01	GRB-220	
LCS (QC ID=36748)	R011075-03			0.30	1.00			95		100			12/01/00	12/01	GRB-219	
Duplicate (R011075-02) (QC ID=36750)	R011075-05			0.19	1.03			96		118		25	12/01/00	12/01	GRB-221	

Nominal values and limits from method 1.0 1.00 30-105 100 180

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
CP-502 Strontium in Solids, rev 2
CP-519 Strontium Planchet Demounting and Preparation for
90Y Decontamination, rev 2

AVERAGES ± 2 SD MDA 0.22 ± 0.093
FOR 5 SAMPLES YIELD 95 ± 2

METHOD SUMMARIES

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Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
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Report date 12/30/00

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

Test IC Matrix SOLID
SDG 7555
Contact Melissa C. Mannion

METHOD SUMMARY
TECHNETIUM 99 IN SOIL
BETA COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1129

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Planchet	Technetium 99
Preparation batch 6962-080					
B10NW1	R011075-01			7555-001	U
B10NW2	R011075-02			7555-002	U
BLK (QC ID=36749)	R011075-04			7555-004	U
LCS (QC ID=36748)	R011075-03			7555-003	ok
Duplicate (R011075-02)	R011075-05			7555-005	- U

Nominal values and limits from method RDLs (pCi/g) 15
100-HR-4 Pump & Treat - Resin Smpg.

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 6962-080 2σ prep error 10.0 % Reference Lab Notebook 6962 pg. 080																
B10NW1	R011075-01			1.4	1.05			35		50		45	12/05/00	12/21	GRB-221	
B10NW2	R011075-02			1.5	1.05			32		50		45	12/05/00	12/21	GRB-222	
BLK (QC ID=36749)	R011075-04			0.70	1.00			73		50			12/05/00	12/19	GRB-232	
LCS (QC ID=36748)	R011075-03			0.70	1.00			77		50			12/05/00	12/19	GRB-231	
Duplicate (R011075-02) (QC ID=36750)	R011075-05			1.2	1.05			39		50		45	12/05/00	12/21	GRB-224	

Nominal values and limits from method 15 1.00 20-105 50 180

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
CP-060	Soil Preparation, rev 2	
CP-021	Preparation of Tc-99m Tracer, rev 0	
CP-002	Q.C. Preparation, rev 2	
CP-003	Tracing, rev 2	
CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 0	
CP-008	Heavy Element Electroplating, rev 3	

AVERAGES ± 2 SD MDA 1.1 ± 0.76
FOR 5 SAMPLES YIELD 51 ± 44

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id TMANC
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TMA/RICHMOND
SAMPLE DELIVERY GROUP H1128

METHOD SUMMARY
TRITIUM IN SOIL
LIQUID SCINTILLATION COUNTING

Test H Matrix SOLID
SDG 7555
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1129

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Tritium
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Preparation batch 6962-080

B10NW1	R011075-01	7555-001	6.56	J
B10NW2	R011075-02	7555-002	9.04	J
BLK (QC ID=36749)	R011075-04	7555-004	U	
LCS (QC ID=36748)	R011075-03	7555-003	ok	
Duplicate (R011075-02)	R011075-05	7555-005	ok	J

Nominal values and limits from method RDLs (pCi/g) 400
100-HR-4 Pump & Treat - Resin Smpg.

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/g	MDA	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
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Preparation batch 6962-080 2σ prep error 10.0 % Reference Lab Notebook 6962 pg. 080

B10NW1	R011075-01	5.9	0.212	100	100	31	12/07/00	12/07	LSC-006
B10NW2	R011075-02	6.1	0.207	100	100	31	12/07/00	12/07	LSC-006
BLK (QC ID=36749)	R011075-04	6.2	0.200	100	100		12/07/00	12/07	LSC-006
LCS (QC ID=36748)	R011075-03	6.2	0.200	100	100		12/07/00	12/08	LSC-006
Duplicate (R011075-02) (QC ID=36750)	R011075-05	5.9	0.210	100	100	32	12/07/00	12/08	LSC-006

Nominal values and limits from method 400 0.200 25 180

PROCEDURES	REFERENCE	TRITIUM_COX_LSC
	CP-060	Soil Preparation, rev 2
	CP-251	Tritium/Carbon-14 Oxidation, rev 2

AVERAGES ± 2 SD	MDA <u>6.1</u> ± <u>0.30</u>
FOR 5 SAMPLES	YIELD <u>100</u> ± <u>0</u>

METHOD SUMMARIES

Page 4

SUMMARY DATA SECTION

Page 15

Lab id	<u>TMANC</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-CMS</u>
Version	<u>3.06</u>
Report date	<u>12/30/00</u>

chtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B99-029-61		Page 1 of 1				
Company Contact T Pickett		Telephone No. 373-4630		Project Coordinator TRENT, SJ		Price Code 9N		Data Turnaround 45 Days						
Project Designation 100-KR-4 Pump & Treat - Resin Sampling		Sampling Location 100 KR4		H/129 (7555)		SAF No. B99-029		Air Quality <input type="checkbox"/>						
Ice Chest No. ERC 99-044 (104)		Field Logbook No. EL 1517-1		COA R10KR4C570		Method of Shipment Fed Ex								
Shipped To TMA/REGRA 11/6/00		Offsite Property No. A912010		Bill of Lading/Air Bill No. 47357453-0350										
POSSIBLE SAMPLE HAZARDS/REMARKS HISTORICAL DATA indicates that samples are <2000 pCi/g				Preservation		None	None	None	None	Cool 4C	Cool 4C	None	None	
				Type of Container		aG	aG	aG	aG	aG	aG	aG	aG	aG
				No. of Container(s)		1	1	1	1	1	1	1	1	1
				Volume		60mL	60mL	60mL	120mL	250mL	250mL	250mL	500mL	
Special Handling and/or Storage				Isotopic Uranium		Strontium-89,90 - Total Sr		Technetium-99		Tritium - H3		Semi-VOA - 8270A (TCL) (Bis(2-ethylhexyl) phthalate)		
SAMPLE ANALYSIS				See item (1) in Special Instructions.		IC Analysis 300.0 (Nickel)		See item (2) in Special Instructions.						
Sample No.		Matrix *		Sample Date		Sample Time								
B10NW1 ✓		OTHER SOLID ✓		11/6/00		1030 ✓								
B10NW2 ✓		OTHER SOLID ✓		11/6/00		1050 ✓								
CHAIN OF POSSESSION						SPECIAL INSTRUCTIONS								
Relinquished By: R. Felt Date/Time: 11/6/00 1300 Received By: R. Felt Date/Time: 11/6/00 1300 Relinquished By: R. Felt Date/Time: 11/7/00 0830 Received By: R. Felt Date/Time: 11/7/00 0830 Relinquished By: R. Felt Date/Time: 11/7/00 0830 Received By: R. Felt Date/Time: 11/7/00 0830 Relinquished By: J. Edwards Date/Time: 11/8/00 10:00 Received By: E. J. Edwards Date/Time: 11/8/00 16:00 Relinquished By: J. Edwards Date/Time: 11/8/00 16:00 Received By: E. J. Edwards Date/Time: 11/8/00 16:00 Relinquished By: J. Edwards Date/Time: 11/8/00 16:00 Received By: E. J. Edwards Date/Time: 11/8/00 16:00						** Historical data indicates that samples are less than 2000 pCi total activity. (1) VOA - 8270A (TCL) (Chloroform, Methylene Chloride), VOA - 8270A (Add On) (Trichloroethylene, Perchloroethylene) (2) Metals by ICP (TCLD) - 1311/6010 (Arsenic, Barium, Cadmium, Chromium, Lead, Octonium, Silver), Metals by ICP (TCLD) - Add on - 1311/6010 (Antimony, Bismuth, Nickel) Samples stored in Ref. # 2B at the 3728 Shipping Facility on 11/6/00 Collector not available to relinquish samples on 11/7/00 for shipment.								
LABORATORY SECTION						SPECIAL INSTRUCTIONS								
Received By: _____ Title: _____ Date/Time: _____						Date/Time: 11/6/00								
Disposed By: _____ Date/Time: _____						Date/Time: 11/7/00								

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client:	BECHTEL HANFORD INC.		Date/Time received <u>11/08/00 10:AM</u>
CoC No.	B99-029-61		
Container I.D. No.	ERC99-044	Requested TAT (Days)	45 P.O. Received Yes [] No [<input checked="" type="checkbox"/>]
INSPECTION			
1.	Custody seals on shipping container intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
2.	Custody seals on shipping container dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
3.	Custody seals on sample containers intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
4.	Custody seals on sample containers dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
5.	Cooler Temperature: _____	Packing material is:	Wet [] Dry [<input checked="" type="checkbox"/>]
6.	Number of samples in shipping container: <u>2 x 4 = (8 containers)</u>		
7.	Number of containers per sample: <u>(4 each)</u> (Or see CoC _____)		
8.	Paperwork agrees with samples?	Yes [<input checked="" type="checkbox"/>]	No []
9.	Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels [<input checked="" type="checkbox"/>]		
10.	Samples are: In good condition [<input checked="" type="checkbox"/>] Leaking [] Broken Container [] Missing []		
11.	Describe any anomalies: _____ _____		
13.	Was P.M. notified of any anomalies? Yes [] No [] Date _____		
14.	Received by <u>E. Segura</u> Date: <u>11-08-00</u> Time: <u>10:AM</u>		

Customer Sample No.	cpm	mr/hr	Customer Sample No.	Cpm	mr/hr

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____



Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-029 H1129

DATE RECEIVED: 11/08/00

RFW LOT # :0011L193

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
---------------------	-------	-----	--------	------------	-----------	----------

B10NW1

% SOLIDS	001	SO	00L%S178	11/06/00	11/09/00	11/10/00
% SOLIDS	001 REP	SO	00L%S178	11/06/00	11/09/00	11/10/00
NITRATE BY IC	001	SO	00LXC076	11/06/00	11/29/00	11/29/00
NITRATE BY IC	001 REP	SO	00LXC076	11/06/00	11/29/00	11/29/00
NITRATE BY IC	001 MS	SO	00LXC076	11/06/00	11/29/00	11/29/00
TCLP	001	SO	00LTO141	11/06/00	12/14/00	12/15/00

B10NW2

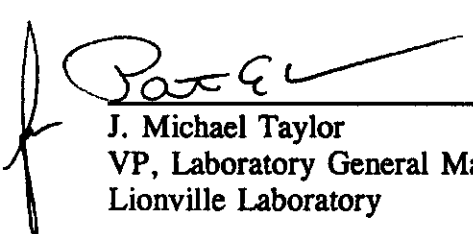
% SOLIDS	002	SO	00L%S178	11/06/00	11/09/00	11/10/00
NITRATE BY IC	002	SO	00LXC076	11/06/00	11/29/00	11/29/00
TCLP	002	SO	00LTO141	11/06/00	12/14/00	12/15/00

LAB QC:

NITRATE BY IC	MB1	S	00LXC076	N/A	11/29/00	11/29/00
NITRATE BY IC	MB1 BS	S	00LXC076	N/A	11/29/00	11/29/00

**Recra LabNet Philadelphia
Analytical Report****Client : TNU-HANFORD B99-029 H1129**
RFW# : 0011L193**W.O. # : 10985-001-001-9999-00**
Date Received: 11-08-00**INORGANIC CASE NARRATIVE**

1. This narrative covers the analyses of 2 solid samples.
2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The cooler temperatures were recorded on the chain-of-custody.
5. The method blank for Nitrate was within method criteria.
6. The Laboratory Control Sample (LCS) for Nitrate was within the laboratory control limits.
7. The matrix spike recovery for Nitrate was within the 75-125% control limits.
8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.
9. Results for solid samples are reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory12-25-00
Date

njp\111-193

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

002

WET CHEMISTRY
METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	___ D2216-80		
% Moisture	___ D2216-80		___ ILMO4.0 (e)
% Solids	✓ ___ D2216-80		___ ILMO4.0 (e)
% Volatile Solids	___ D2216-80		
ASTM Extraction in Water	___ D3987-81/85		
BTU	___ D240-87		
CEC		___ 9081	___ c
Chromium VI		___ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		___ 1110(mod) ___ 9045C	
Cyanide, Total		___ 9010B	___ ILMO4.0 (e)
Cyanide, Reactive		___ Section 7.3/9014	
Halides, Extractable Organic		___ 9020B	___ EPA 600/4/84-008
Halides, Total		___ 9020B	___ EPA 600/4/84-008
EP Toxicity		___ 1310A	
Flash Point		___ 1010	
Ignitability		___ 1010	
Oil & Grease		___ 9071A	
Carbon, Total Organic		___ 9060	___ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	___ D240-87(mod)	___ 5050	
Petroleum Hydrocarbons, Total Recoverable		___ 9071	___ EPA 418.1
pH, Soil		___ 9045C	
Sulfide, Reactive		___ Section 7.3/9030B	
Sulfide		___ 9030B(mod)	
Specific Gravity	___ D1429-76C/	___ D5057-90	
Sulfur, Total		___ 9056	
Synthetic Preparation Leach		___ 1312	
Paint Filter		___ 9095A	
Other: <i>Nitrate</i>	Method: <i>EPA 300.0 (mod)</i>		
Other: _____	Method: _____		

Recra LabNet Philadelphia

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
 - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
 - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
 - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
 - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
 - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
 - f. Code of Federal Regulations.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/15/00

CLIENT: TNUHANFORD B99-029 H1129
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0011L193

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B10NW1	% Solids	47.2	%	0.01	1.0
		Nitrate by IC	5.5	MG/KG	2.7	1.0
-002	B10NW2	% Solids	47.2	%	0.01	1.0
		Nitrate by IC	6.4	MG/KG	2.6	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/15/00

CLIENT: TNUHANFORD B99-029 H1129
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0011L193

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LXC076-NB1	Nitrate by IC	1.2	u MG/KG	1.2	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 12/15/00

CLIENT: TNUHANFORD B99-029 H1129
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0011L193

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-----	-----	-----	-----	-----	-----	-----	-----
-001	B10NW1	Nitrate by IC	57	5.5	53	97.9	1.0
BLANK10	00LXC076-MB1	Nitrate by IC	25	1.2 u	25	98.5	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/15/00

CLIENT: TNUHANFORD B99-029 H1129
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0011L193

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-----	-----	-----	-----	-----	-----	-----
-001REP	B10NW1	% Solids	47.2	47.2	0.021	1.0
		Nitrate by IC	5.5	5.6	0.75	1.0

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

**RECRA
LabNet**

[illegible]

Special Instructions: SAs B99-02C

Run Matrix QC

DATE/REVISIONS:

* See lab chron.
met ①: As, Ba, Cd, Cr, Pb, Se, Ag, Sb, Be, Ni

6

RECRA LabNet Use Only

Samples were:

1) Shipped ☒ or
Hand Delivered ☐

Airbill # See below

2) Ambient or Chilled

3) Received in Good
Condition ☒ or ☐

4) Labels Indicate
Properly Preserved
(☒) or ☐

COC Tape was:

- 1) Present on Outer Package (Y) or N
- 2) Unbroken on Outer Package (Y) or N
- 3) Present on Sample (Y) or N
- 4) Unbroken on Sample (Y) or N

COC Record Present
Upon Sample Rec'd
(Y) or N

Cooler
Temp 4 °C

5) Received Within Holding Times (Y) or N

Discrepancies Between
Samples Labels and
COC Record? Y or N

4245.7953034 p(1)

Relinquished by	Received by	Date	Time
FedEx	TKoppel	11:00	1015

Relinquished by	Received by	Date	Time
COMPOSITE	ORIGINAL		

BHI-EE-011 (10/99)

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-029 H1129



DATE RECEIVED: 11/08/00

RFW LOT # :0011L193

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10NW1						
TCLP	001	SO	00LTO141	11/06/00	12/14/00	12/15/00
B10NW2						
TCLP	002	SO	00LTO141	11/06/00	12/14/00	12/15/00
B10NW1						
SILVER, TCLP LEACHAT	003	W	99L1822	12/15/00	12/15/00	12/19/00
SILVER, TCLP LEACHAT	003 REP	W	99L1822	12/15/00	12/15/00	12/19/00
SILVER, TCLP LEACHAT	003 MS	W	99L1822	12/15/00	12/15/00	12/19/00
ARSENIC, TCLP LEACHA	003	W	99L1822	12/15/00	12/15/00	12/18/00
ARSENIC, TCLP LEACHA	003 REP	W	99L1822	12/15/00	12/15/00	12/18/00
ARSENIC, TCLP LEACHA	003 MS	W	99L1822	12/15/00	12/15/00	12/18/00
BARIUM, TCLP LEACHAT	003	W	99L1822	12/15/00	12/15/00	12/19/00
BARIUM, TCLP LEACHAT	003 REP	W	99L1822	12/15/00	12/15/00	12/19/00
BARIUM, TCLP LEACHAT	003 MS	W	99L1822	12/15/00	12/15/00	12/19/00
BERYLLIUM, TCLP LEAC	003	W	99L1822	12/15/00	12/15/00	12/19/00
BERYLLIUM, TCLP LEAC	003 REP	W	99L1822	12/15/00	12/15/00	12/19/00
BERYLLIUM, TCLP LEAC	003 MS	W	99L1822	12/15/00	12/15/00	12/19/00
CADMIUM, TCLP LEACHA	003	W	99L1822	12/15/00	12/15/00	12/18/00
CADMIUM, TCLP LEACHA	003 REP	W	99L1822	12/15/00	12/15/00	12/18/00
CADMIUM, TCLP LEACHA	003 MS	W	99L1822	12/15/00	12/15/00	12/18/00
CHROMIUM, TCLP LEACH	003	W	99L1822	12/15/00	12/15/00	12/18/00
CHROMIUM, TCLP LEACH	003 REP	W	99L1822	12/15/00	12/15/00	12/18/00
CHROMIUM, TCLP LEACH	003 MS	W	99L1822	12/15/00	12/15/00	12/18/00
NICKEL, TCLP LEACHAT	003	W	99L1822	12/15/00	12/15/00	12/19/00
NICKEL, TCLP LEACHAT	003 REP	W	99L1822	12/15/00	12/15/00	12/19/00
NICKEL, TCLP LEACHAT	003 MS	W	99L1822	12/15/00	12/15/00	12/19/00
LEAD, TCLP LEACHATE	003	W	99L1822	12/15/00	12/15/00	12/18/00
LEAD, TCLP LEACHATE	003 REP	W	99L1822	12/15/00	12/15/00	12/18/00
LEAD, TCLP LEACHATE	003 MS	W	99L1822	12/15/00	12/15/00	12/18/00
ANTIMONY, TCLP LEACH	003	W	99L1822	12/15/00	12/15/00	12/18/00
ANTIMONY, TCLP LEACH	003 REP	W	99L1822	12/15/00	12/15/00	12/18/00
ANTIMONY, TCLP LEACH	003 MS	W	99L1822	12/15/00	12/15/00	12/18/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-029 H1129

DATE RECEIVED: 11/08/00

RFW LOT # :0011L193

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TCLP LEACH	003	W	99L1822	12/15/00	12/15/00	12/18/00
SELENIUM, TCLP LEACH	003 REP	W	99L1822	12/15/00	12/15/00	12/18/00
SELENIUM, TCLP LEACH	003 MS	W	99L1822	12/15/00	12/15/00	12/18/00

B10NW2

SILVER, TCLP LEACHAT	004	W	99L1822	12/15/00	12/15/00	12/19/00
ARSENIC, TCLP LEACHA	004	W	99L1822	12/15/00	12/15/00	12/18/00
BARIUM, TCLP LEACHAT	004	W	99L1822	12/15/00	12/15/00	12/19/00
BERYLLIUM, TCLP LEAC	004	W	99L1822	12/15/00	12/15/00	12/19/00
CADMIUM, TCLP LEACHA	004	W	99L1822	12/15/00	12/15/00	12/18/00
CHROMIUM, TCLP LEACH	004	W	99L1822	12/15/00	12/15/00	12/18/00
NICKEL, TCLP LEACHAT	004	W	99L1822	12/15/00	12/15/00	12/19/00
LEAD, TCLP LEACHATE	004	W	99L1822	12/15/00	12/15/00	12/18/00
ANTIMONY, TCLP LEACH	004	W	99L1822	12/15/00	12/15/00	12/18/00
SELENIUM, TCLP LEACH	004	W	99L1822	12/15/00	12/15/00	12/18/00

LAB QC:

SILVER LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/19/00
SILVER, TCLP LEACHAT	MB1	W	99L1822	N/A	12/15/00	12/19/00
SILVER, TCLP LEACHAT	MB2	W	99L1822	N/A	12/15/00	12/19/00
ARSENIC LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/18/00
ARSENIC, TCLP LEACHA	MB1	W	99L1822	N/A	12/15/00	12/18/00
ARSENIC, TCLP LEACHA	MB2	W	99L1822	N/A	12/15/00	12/18/00
BARIUM LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/19/00
BARIUM, TCLP LEACHAT	MB1	W	99L1822	N/A	12/15/00	12/19/00
BARIUM, TCLP LEACHAT	MB2	W	99L1822	N/A	12/15/00	12/19/00
BERYLLIUM LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/19/00
BERYLLIUM, TCLP LEAC	MB1	W	99L1822	N/A	12/15/00	12/19/00
BERYLLIUM, TCLP LEAC	MB2	W	99L1822	N/A	12/15/00	12/19/00
CADMIUM LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/18/00
CADMIUM, TCLP LEACHA	MB1	W	99L1822	N/A	12/15/00	12/18/00
CADMIUM, TCLP LEACHA	MB2	W	99L1822	N/A	12/15/00	12/18/00
CHROMIUM LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/18/00
CHROMIUM, TCLP LEACH	MB1	W	99L1822	N/A	12/15/00	12/18/00
CHROMIUM, TCLP LEACH	MB2	W	99L1822	N/A	12/15/00	12/18/00
NICKEL LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/19/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-029 H1129

DATE RECEIVED: 11/08/00

RFW LOT # :0011L193

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TCLP LEACHAT	MB1	W	99L1822	N/A	12/15/00	12/19/00
NICKEL, TCLP LEACHAT	MB2	W	99L1822	N/A	12/15/00	12/19/00
LEAD LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/18/00
LEAD, TCLP LEACHATE	MB1	W	99L1822	N/A	12/15/00	12/18/00
LEAD, TCLP LEACHATE	MB2	W	99L1822	N/A	12/15/00	12/18/00
ANTIMONY LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/18/00
ANTIMONY, TCLP LEACH	MB1	W	99L1822	N/A	12/15/00	12/18/00
ANTIMONY, TCLP LEACH	MB2	W	99L1822	N/A	12/15/00	12/18/00
SELENIUM LABORATORY	LC1 BS	W	99L1822	N/A	12/15/00	12/18/00
SELENIUM, TCLP LEACH	MB1	W	99L1822	N/A	12/15/00	12/18/00
SELENIUM, TCLP LEACH	MB2	W	99L1822	N/A	12/15/00	12/18/00

**Recra LabNet Philadelphia
Analytical Report**

Client: TNU-HANFORD B99-029
RFW#: 0011L193
SDG/SAF#: H1129/B99-029

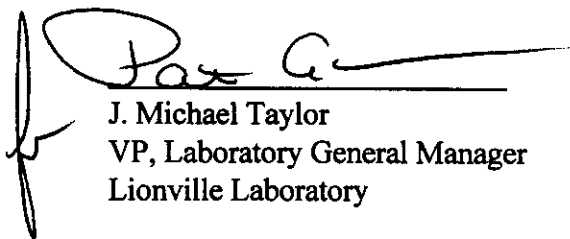
W.O.#: 10985-001-001-9999-00
Date Received: 11-08-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 TCLP leachate samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury). The CCVs for Silver, Barium, Beryllium, and Nickel were outside control limits in file PS1218D. All samples were rerun and reported for Silver, Barium, Beryllium, and Nickel from file PS1219A.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to form 7.
10. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
11. The TCLP extract from sample B10NW1 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



J. Michael Taylor
VP, Laboratory General Manager
Lionville Laboratory

12-27-03
Date

gmb/m11-193



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 20114193

Leaching Procedure: 1310 / 1311 1312 Other: _____

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A / 3010A 3015 3020A 3050B 3051 200.7 SS17
 Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Antimony	<u> </u> 6010B <u> </u> 7041 ^s	<u> </u> 200.7 <u> </u> 204.2			<u> </u> 99
Arsenic	<u> </u> 6010B <u> </u> 7060A ^s	<u> </u> 200.7 <u> </u> 206.2	<u> </u> 3113B		<u> </u> 99
Barium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Beryllium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Bismuth	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Boron	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Cadmium	<u> </u> 6010B <u> </u> 7131A ^s	<u> </u> 200.7 <u> </u> 213.2			<u> </u> 99
Calcium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Chromium	<u> </u> 6010B <u> </u> 7191 ^s	<u> </u> 200.7 <u> </u> 218.2			<u> </u> SS17
Cobalt	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Copper	<u> </u> 6010B <u> </u> 7211 ^s	<u> </u> 200.7 <u> </u> 220.2			<u> </u> 99
Iron	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Lead	<u> </u> 6010B <u> </u> 7421 ^s	<u> </u> 200.7 <u> </u> 239.2	<u> </u> 3113B		<u> </u> 99
Lithium	<u> </u> 6010B <u> </u> 7430 ⁴	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Magnesium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Manganese	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Mercury	<u> </u> 7470A ³ <u> </u> 7471A ³	<u> </u> 245.1 ² <u> </u> 245.5 ²			<u> </u> 99
Molybdenum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Nickel	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Potassium	<u> </u> 6010B <u> </u> 7610 ⁴	<u> </u> 200.7 <u> </u> 258.1 ⁴			<u> </u> 99
Rare Earths	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Selenium	<u> </u> 6010B <u> </u> 7740 ^s	<u> </u> 200.7 <u> </u> 270.2	<u> </u> 3113B		<u> </u> 99
Silicon	<u> </u> 6010B ¹	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silica	<u> </u> 6010B	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silver	<u> </u> 6010B <u> </u> 7761 ^s	<u> </u> 200.7 <u> </u> 272.2			<u> </u> 99
Sodium	<u> </u> 6010B <u> </u> 7770 ⁴	<u> </u> 200.7 <u> </u> 273.1 ⁴			<u> </u> 99
Strontium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Thallium	<u> </u> 6010B <u> </u> 7841 ^s	<u> </u> 200.7 <u> </u> 279.2 <u> </u> 200.9			<u> </u> 99
Tin	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Titanium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Uranium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Vanadium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Zinc	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Zirconium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99

Other: _____

Method: _____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LCS = Laboratory Control Sample.

NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/26/00

CLIENT: TNUHANFORD B99-029 H1129

RECRA LOT #: 0011L193

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-003	B10NW1	Silver, TCLP Leachate	2.5	u UG/L	2.5	1.0
		Arsenic, TCLP Leachate	33.9	u UG/L	33.9	1.0
		Barium, TCLP Leachate	5.8	UG/L	3.0	1.0
		Beryllium, TCLP Leachate	0.60	u UG/L	0.60	1.0
		Cadmium, TCLP Leachate	3.4	u UG/L	3.4	1.0
		Chromium, TCLP Leachate	1550	UG/L	4.9	1.0
		Nickel, TCLP Leachate	12.5	u UG/L	12.5	1.0
		Lead, TCLP Leachate	25.0	u UG/L	25.0	1.0
		Antimony, TCLP Leachate	17.0	u UG/L	17.0	1.0
		Selenium, TCLP Leachate	62.3	u UG/L	62.3	1.0
-004	B10NW2	Silver, TCLP Leachate	2.5	u UG/L	2.5	1.0
		Arsenic, TCLP Leachate	35.4	UG/L	33.9	1.0
		Barium, TCLP Leachate	7.3	UG/L	3.0	1.0
		Beryllium, TCLP Leachate	0.60	u UG/L	0.60	1.0
		Cadmium, TCLP Leachate	3.4	u UG/L	3.4	1.0
		Chromium, TCLP Leachate	1510	UG/L	4.9	1.0
		Nickel, TCLP Leachate	12.5	u UG/L	12.5	1.0
		Lead, TCLP Leachate	25.0	u UG/L	25.0	1.0
		Antimony, TCLP Leachate	17.0	u UG/L	17.0	1.0
		Selenium, TCLP Leachate	62.3	u UG/L	62.3	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/26/00

CLIENT: TNUHANFORD B99-029 H1129

RECRA LOT #: 0011L193

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
BLANK1	99L1822-MB1	Silver, TCLP Leachate	2.5	u UG/L	2.5	1.0
		Arsenic, TCLP Leachate	33.9	u UG/L	33.9	1.0
		Barium, TCLP Leachate	3.0	u UG/L	3.0	1.0
		Beryllium, TCLP Leachate	0.60	u UG/L	0.60	1.0
		Cadmium, TCLP Leachate	3.4	u UG/L	3.4	1.0
		Chromium, TCLP Leachate	4.9	u UG/L	4.9	1.0
		Nickel, TCLP Leachate	12.5	u UG/L	12.5	1.0
		Lead, TCLP Leachate	25.0	u UG/L	25.0	1.0
		Antimony, TCLP Leachate	17.0	u UG/L	17.0	1.0
		Selenium, TCLP Leachate	62.3	u UG/L	62.3	1.0
BLANK2	99L1822-MB2	Silver, TCLP Leachate	2.5	u UG/L	2.5	1.0
		Arsenic, TCLP Leachate	33.9	u UG/L	33.9	1.0
		Barium, TCLP Leachate	42.4	u UG/L	3.0	1.0
		Beryllium, TCLP Leachate	0.60	u UG/L	0.60	1.0
		Cadmium, TCLP Leachate	3.4	u UG/L	3.4	1.0
		Chromium, TCLP Leachate	4.9	u UG/L	4.9	1.0
		Nickel, TCLP Leachate	12.5	u UG/L	12.5	1.0
		Lead, TCLP Leachate	25.0	u UG/L	25.0	1.0
		Antimony, TCLP Leachate	17.0	u UG/L	17.0	1.0
		Selenium, TCLP Leachate	62.3	u UG/L	62.3	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 12/26/00

CLIENT: TNUHANFORD B99-029 H1129

RECRA LOT #: 0011L193

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-003	B10NW1	Silver, TCLP Leachate	3400	2.5 u	5000	68.1	1.0
		Arsenic, TCLP Leachate	4830	33.9 u	5000	96.6	1.0
		Barium, TCLP Leachate	91500	5.8	100000	91.5	5.0
		Beryllium, TCLP Leacha	934	0.60u	1000	93.4	1.0
		Cadmium, TCLP Leachate	953	3.4 u	1000	95.3	1.0
		Chromium, TCLP Leachat	6310	1550	5000	95.1	1.0
		Nickel, TCLP Leachate	964	12.5 u	1000	96.4	1.0
		Lead, TCLP Leachate	4930	25.0 u	5000	98.7	1.0
		Antimony, TCLP Leachat	686	17.0 u	1000	68.6	1.0
		Selenium, TCLP Leachat	959	62.3 u	1000	95.9	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/26/00

CLIENT: TNUHANFORD B99-029 H1129

RECRA LOT #: 0011L193

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL	REPLICATE RPD		DILUTION FACTOR (REP)
			RESULT			
-----	-----	-----	-----	-----	-----	-----
-003REP	B10NW1	Silver, TCLP Leachate	2.5 u	2.5 u	NC	1.0
		Arsenic, TCLP Leachate	33.9 u	35.3	NC 200	1.0
		Barium, TCLP Leachate	5.8	5.7	1.7	1.0
		Beryllium TCLP Leachate	0.60u	0.60u	NC	1.0
		Cadmium, TCLP Leachate	3.4 u	3.4 u	NC	1.0
		Chromium, TCLP Leachate	1550	1560	0.47	1.0
		Nickel, Leachate	12.5 u	12.5 u	NC	1.0
		Lead, TCLP Leachate	25.0 u	25.0 u	NC	1.0
		Antimony, Leachate	17.0 u	17.0 u	NC	1.0
		Selenium, TCLP Leachate	62.3 u	62.3 u	NC	1.0

471
12/26/00

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/26/00

CLIENT: TNUHANFORD B99-029 H1129
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0011L193

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
-----	-----	-----	-----	-----	-----	-----
LCS1	99L1822-LC1	Silver, LCS	492	500	UG/L	98.5
		Arsenic, LCS	9380	10000	UG/L	93.8
		Barium, LCS	4950	5000	UG/L	99.0
		Beryllium, LCS	245	250	UG/L	98.1
		Cadmium, LCS	238	250	UG/L	95.2
		Chromium, LCS	476	500	UG/L	95.2
		Nickel, LCS	2010	2000	UG/L	100.7
		Lead, LCS	2380	2500	UG/L	95.4
		Antimony, LCS	2850	3000	UG/L	94.9
		Selenium, LCS	9380	10000	UG/L	93.8

0011193

Custody Transfer Record/Lab Work Request Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client Thu-Hanford 899-029

Est. Final Proj. Sampling Date _____

Project # 10985-001-001-999900

Project Contact/Phone # _____

RECRA Project Manager OSQC Spec Del Std TAT 30 dayDate Rec'd 11-8-00 Date Due 12-8-00

Account # _____

MATRIX CODES:

S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum
DL - Drum
L - EP/TCLP
WI - Wipe
X - Other
F - Fish

Lab ID

Client ID/Description

Matrix QC Chosen (S)

MS MSD

Matrix

Date Collected

Time Collected

Cu24X

Cu25X

ITCLP

Met ①

ICR03

Refrigerator #

#/Type Container

Liquid

Solid

Volume

Liquid

Solid

Preservatives

ANALYSES REQUESTED

ORGANIC

VOA

BNA

Pest/PCB

Herb

INORG

Metal

CN

RECRA LabNet Use Only

Special Instructions: Saf 899-029Run Matrix QC

DATE/REVISIONS:

* 1. See lab chron
Met ① 2. As, Ba, Cd, Cr, Pb, Se, Ag, Sb, Be, Ni

RECRA LabNet Use Only

Samples were:

1) Shipped ☒ or
Hand Delivered ☒

Airbill # See below2) Ambient or Chilled3) Received in Good Condition ☒ or N4) Labels Indicate Properly Preserved ☒ or N5) Received Within Holding Times ☒ or N

COC Tape was:

1) Present on Outer Package ☒ or N

2) Unbroken on Outer Package ☒ or N

3) Present on Sample ☒ or N

4) Unbroken on Sample ☒ or N

COC Record Present Upon Sample Rec'l ☒ or N

Conter Temp 4 °C

Relinquished by

Received by

Date

Time

Relinquished by

Received by

Date

Time

Discrepancies Between Samples Labels and COC Record? Y or N ☒
NOTES:

423579530360

COMPOSITE WASTE

ORIGINAL REWRITTEN

00112193

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-029-61		Page 1 of 1			
Collector Fahlberg		Company Contact T Pickett		Telephone No. 373-4630		Project Coordinator TRENT, SJ		Price Code 9N Data Turnaround 45 Days			
Project Designation 100-KR-4 Pump & Treat - Resin Sampling		Sampling Location 100 KR4		SAF No. B99-029		Air Quality					
Ice Chest No. GWS-142 (10ft)		Field Logbook No. EL 1517-I		COA R10KR4C570		Method of Shipment Fed Ex					
Shipped To FMA/RECRA 11/6/00		Offsite Property No. A010004		Bill of Lading/Air Bill No. 2357953-0360							
POSSIBLE SAMPLE HAZARDS/REMARKS Historical DATA indicates that Samples are < 2000 pCi/g		Preservation		None	None	None	None	None	None		
		Type of Container		aG	aG	aG	aG	aG	aG	aG	
		No. of Container(s)		1	1	1	1	1	1	1	
		Volume		60mL	60mL	60mL	120mL	250mL	250mL	250mL	500mL
Special Handling and/or Storage				Isotopic Uranium	Strontium-90 - Total Sr	Technetium-99	Tritium - H3	Semi-VOA - 8270A (TCL) (Bio(2-ethylhexyl) phthalate)	See item (1) in Special Instructions	IC Anions - 1000 (Nitrate)	See item (2) in Special Instructions
SAMPLE ANALYSIS											
Sample No.	Matrix *	Sample Date	Sample Time								
B10NW1	OTHER SOLID	11/6/00	1030					X	X		
B10NW2	OTHER SOLID	11/6/00	1050					X	X		
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS							
Relinquished By R. Fahlberg 11/6/00 1300 Relinquished By R. Fahlberg 11/6/00 0830 Relinquished By R. Fahlberg 11/7/00 0830 Relinquished By R. Fahlberg 11/7/00 0830 Relinquished By Fed Ex 11/8/00 1015 Relinquished By Fed Ex 11/8/00 1015 Relinquished By Fed Ex 11/8/00 1015				Sign/Print Names Received By R. Fahlberg 11/6/00 1300 Received By R. Fahlberg 11/6/00 0830 Received By R. Fahlberg 11/7/00 0830 Received By R. Fahlberg 11/7/00 0830 Received By Fed Ex 11/8/00 1015 Received By Fed Ex 11/8/00 1015 Received By Fed Ex 11/8/00 1015							
Relinquished By R. Fahlberg 11/6/00 1300 Relinquished By R. Fahlberg 11/6/00 0830 Relinquished By R. Fahlberg 11/7/00 0830 Relinquished By R. Fahlberg 11/7/00 0830 Relinquished By Fed Ex 11/8/00 1015 Relinquished By Fed Ex 11/8/00 1015 Relinquished By Fed Ex 11/8/00 1015				** Historical data indicates that samples are less than 2000 pCi total activity. (1) VOA - 8260A (TCL) [Chloroform, Methylenechloride]; VOA - 8260A (Add-On) [Trichloromono-fluoromethane] (2) Metals by ICP (TCLP) - 1311/6010 [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Metals by ICP (TCLP) Add-on - 1311/6010 [Antimony, Beryllium, Nickel] Samples stored in Ref. # 2B at the 3728 Shipping Facility on 11/6/00 Collector not available to relinquish samples on 11/7/00 for shipment.							
LABORATORY SECTION				Matrix *							
Received By				S - Soil SE - Sediment S/S - Solid S - Sludge W - Water D - Oil A - Air DS - Drum Solids DL - Drum Liquid T - Tissue W1 - Wipe L - Liquid V - Vegetation X - Other							
FINAL SAMPLE DISPOSITION				Disposal Method							
Disposed By				Date/Time							

Recra LabNet - Lionville Laboratory
 BNA ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD B99-029 H1129

DATE RECEIVED: 11/08/00

RFW LOT # :0011L193

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10NW1	001	SO	00LE1457	11/06/00	11/09/00	11/27/00
B10NW1	001 R1	SO	00LE1587	11/06/00	12/05/00	12/14/00
B10NW1	001 MS	SO	00LE1457	11/06/00	11/09/00	11/27/00
B10NW1	001 MS R1	SO	00LE1587	11/06/00	12/05/00	12/14/00
B10NW1	001 MSD	SO	00LE1457	11/06/00	11/09/00	11/27/00
B10NW1	001 MSD R1	SO	00LE1587	11/06/00	12/05/00	12/14/00
B10NW2	002	SO	00LE1457	11/06/00	11/09/00	11/28/00
B10NW2	002 R1	SO	00LE1587	11/06/00	12/05/00	12/14/00

LAB QC:

SBLKGH	MB1	S	00LE1457	N/A	11/09/00	11/26/00
SBLKGH	MB1 BS	S	00LE1457	N/A	11/09/00	11/26/00
SBLKJP	MB1	S	00LE1587	N/A	12/05/00	12/13/00
SBLKJP	MB1 BS	S	00LE1587	N/A	12/05/00	12/13/00



Client: TNU-HANFORD B99-029
RFW #: 0011L193
SDG/SAF #: H1129/B99-029

W.O. #: 10985-001-001-9999-00
Date Received: 11-08-2000

SEMIVOLATILE

Two (2) solid samples were collected on 11-06-2000.

The samples and their associated QC samples were extracted on 11-09-2000, re-extracted on 12-05-2000 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270C for TCL Semivolatile target compound Bis(2-Ethylhexyl)phthalate on 11-26,27,28-2000 and 12-13-14-2000.

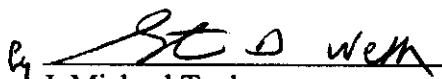
The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The samples were initially extracted and analyzed within required holding times; however, both samples were re-extracted outside holding time to confirm the level of Bis (2-Ethylhexyl) phthalate. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
3. The re-extracted analyses were spiked with base/neutral surrogate at 75ug instead of the specified 50ug. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
4. Sample B10NW2 required a 2-fold dilution due to high levels of target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within EPA QC limits.

All matrix spike recoveries were within EPA QC limits. The compound Bis(2-Ethylhexyl)phthalate exceeded the calibration range in sample B10NM1 MSD. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

The target compound is not included in the spiking solution. (CLP spike recoveries have been reported on the Form 3.)

7. The method blanks contained the common laboratory contaminant Bis(2-Ethylhexyl)phthalate at levels less than 3x the CRQL; however, all associated analyses yielded levels of Bis(2-Ethylhexyl)phthalate at levels less than the CRQL.
8. All internal standard area and retention time criteria were met.
9. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."


J. Michael Taylor
V.P./Laboratory General Manager
Lionville Laboratory

01-09-01
Date

som\group\data\bna\tnu-hanford-11-193.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages, including page 4A.

Initiator: Bernard Foley Batch: 0011193 Parameter: BNA
 Date: 12/1/00 Samples: 1,2 Matrix: S
 Client: TW Method: SW846/MCAWW/CLP/ Prep Batch: 00EX175

1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C
☐ Transcription Error ☐ Wrong Test Code ☐ Other _____

b. General Discrepancy

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible
☐ Hold Time Exceeded ☐ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Surrogate concentration switched

2. Known or Probable Causes(s)

analyst error

3. Discussion and Proposed Action

Other Description:

Reference SDR # 00EX176

☐ Re-log
☐ Entire Batch
☐ Following Samples: _____
☐ Re-leach
☐ Re-extract
☐ Re-digest
☐ Revise EDD
☐ Change Test Code to _____
☐ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: _____

☐ Concur with Proposed Action
☐ Disagree with Proposed Action; See Instruction
☐ Include in Case Narrative
☐ Client Contacted:
 Date/Person _____
☐ Add
☐ Cancel

5. Final Action...signature/date: _____

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)
☒ Included in Case Narrative
☐ Hard Copy COC Revised
☐ Electronic COC Revised
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR

☒ Initiator
☒ Lab General Manager: M. Taylor
☒ Project Mgr: Stone/Johnson
☒ Technical Mgr: Wesson/Daniels
☒ QA (file): Popp
☐ Data Management: Feldman
☐ Sample Prep: Doughty/Kiger

Route Distribution of Completed SDR

☐ Metals: Doughty
☐ Inorganic: Perrone
☐ GC/LC: Pastor
☒ MS: Rycklak/Layman
☐ Log-in: Keppel
☐ Admin: Soos
☐ Other: _____

RECRA

Sample Discrepancy Report (SDR)

SDR #: 00MS339

Initiator: M. Petry Batch: 00112193 Parameter: BNP 005X
Date: 11-30-00 Samples: 001MSD Matrix: solid
Client: TWU - Hartford Method: SWB46/MCAWW/CLP/ Prep Batch: 00LE1457

1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C
☐ Transcription Error ☐ Wrong Test Code ☐ Other _____

b. General Discrepancy

☐ Missing Sample/Extract ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible
☐ Hold Time Exceeded ☐ Insufficient Sample ☐ Preservation Wrong ☐ Received Past Hold
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)....signature/date: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

001MSD - over calibration level for bis (2-Ethylhexyl) phthalate)

2. Known or Probable Causes(s) (To be used for trend analysis)

☐ Lack of Organization ☐ Other (Please explain):
☐ Lack of Training
☐ Lack of Discipline
☐ Lack of Resources
☐ Lack of Time
☐ Lack of Management Support

3. Discussion and Proposed Action

Other Description:

☐ Re-log
☐ Entire Batch
☐ Following Samples: _____
☐ Re-leach
☒ Re-extract
☐ Re-digest
☐ Revise EDD
☐ Change Test Code to _____
☐ Place On/Take Off Hold (circle)

001/001MS within method
calibration limits

4. Project Manager Instructions....signature/date: M. Petry 12/1/00

☐ Concur with Proposed Action
☐ Disagree with Proposed Action; See Instruction
☐ Include in Case Narrative
☐ Client Contacted:
Date/Person _____
☐ Add
☐ Cancel

5. Final Action....signature/date: M. Petry 12/7/00

Other Explanation:

☒ Verified re-[log][leach][extract][digest][analysis] (circle)
☒ Included in Case Narrative 47 1/3/00
☐ Hard Copy COC Revised
☐ Electronic COC Revised
☐ EDD Corrections Completed

Batch 1587 - 12/5/00

When Final Action has been recorded, forward original to QA for distribution and filing.

Route/Distribution of SDR

☐ Initiator
☐ Lab Manager: M. Taylor
☒ Project Mgr: Stone/Carey/Johanson
☐ Section Mgr: Wesson/Daniels
☒ QA (file): Schrenkel
☐ Data Management: Feldman
☐ Sample Prep: Bickel/Kauffman

Route Distribution of Completed SDR

☐ Metals: Doughty
☐ Inorganic: Perrone
☐ GC/LC: Pastor
☒ MS: Layman/Rycklak
☐ Log-in: Keppel
☐ Admin: Soos
☐ Other: _____

R. Layman
12/1/00

GLOSSARY OF BNA DATA

DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify.
- A** = Indicates that a TIC is a suspected aldol-condensation product.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.



GLOSSARY OF BNA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.



3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Recra.LabNetContract: 0985-01-01Case No.: TNUHANFORD B99-029 H1129RFW Lot No.: 0011L193-001MATRIX Spike - Sample No.: B10NW1

COMPOUND	SPIKE ADDED UG/KG	SAMPLE CONCENTRATION UG/KG	MS CONCENTRATION UG/KG	MS % REC #	QC LIMITS REC.
Phenol	5300	0	2670	50	26 - 90
2-Chlorophenol	5300	0	2080	39	25 -102
1,4-Dichlorobenzene	3530	0	1180	33	28 -104
N-Nitroso-di-n-prop. (1)	3530	0	1930	55	41 -126
1,2,4-Trichlorobenzene	3530	0	1460	41	38 -107
4-Chloro-3-methylphenol	5300	0	2830	53	26 -103
Acenaphthene	3530	0	1820	51	31 -137
4-Nitrophenol	5300	0	0	0 *	11 -114
2,4-Dinitrotoluene	3530	0	1860	53	28 - 89
Pentachlorophenol	5300	0	0	0 *	17 -109
Pyrene	3530	0	2270	64	35 -142

COMPOUND	SPIKE ADDED UG/KG	MSD CONCENTRATION UG/KG	MSD % REC #	% RPD #	QC LIMITS RPD REC
Phenol	5300	3120	59	16	35 26 - 90
2-Chlorophenol	5300	2470	47	18	50 25 -102
1,4-Dichlorobenzene	3530	1420	40	19	27 28 -104
N-Nitroso-di-n-prop. (1)	3530	2170	61	10	38 41 -126
1,2,4-Trichlorobenzene	3530	1750	50	20	23 38 -107
4-Chloro-3-methylphenol	5300	3300	62	15	33 26 -103
Acenaphthene	3530	2180	62	19	19 31 -137
4-Nitrophenol	5300	0	0 *	0	50 11 -114
2,4-Dinitrotoluene	3530	2100	59	10	47 28 - 89
Pentachlorophenol	5300	0	0 *	0	47 17 -109
Pyrene	3530	2600	73	13	36 35 -142

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 11 outside limitsSpike Recovery: 1 out of 22 outside limitsCOMMENTS: 0 of 12 base/neutral compounds < 1/3/00

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Recra.LabNetContract: 0985-01-01Case No.: TNUHANFORD B99-029 H1129RFW Lot No.: 0011L193-001MATRIX Spike - Sample No.: B10NW1RELevel: (low/med) LOW

COMPOUND	SPIKE ADDED UG/KG	SAMPLE CONCENTRATION UG/KG	MS CONCENTRATION UG/KG	MS % REC #	QC LIMITS REC
1,4-Dichlorobenzene	3640	0	1750	48	28 -104
N-Nitroso-Di-n-propylamine	3640	0	3130	86	41 -126
1,2,4-Trichlorobenzene	3640	0	2090	57	38 -107
Acenaphthene	3640	0	2790	77	31 -137
2,4-Dinitrotoluene	3640	0	2630	72	28 -89
Pyrene	3640	0	2880	79	35 -142

COMPOUND	SPIKE ADDED UG/KG	MSD CONCENTRATION UG/KG	MSD % REC #	% RPD #	QC LIMITS RPD REC
1,4-Dichlorobenzene	3510	1510	43	11	27 28 -104
N-Nitroso-Di-n-propylamine	3510	2330	66	26	38 41 -126
1,2,4-Trichlorobenzene	3510	1720	49	15	23 38 -107
Acenaphthene	3510	2170	62	21 *	19 31 -137
2,4-Dinitrotoluene	3510	2120	61	16	47 28 -89
Pyrene	3510	2400	68	15	36 35 -142

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 1 out of 6 outside limitsSpike Recovery: 0 out of 12 outside limits

COMMENTS:

3D
SOIL SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: Recra.LabNet

Contract: 0985-01-01

Case No.: TNUHANFORD B99-029 H1129

RFW Lot No.: 0011L193

BLANK Spike - Sample No.: SBLKGHLE1457-MB1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED UG/KG	SAMPLE CONCENTRATION UG/KG	BS CONCENTRATION UG/KG	BS % REC #	QC LIMITS REC
1,4-Dichlorobenzene	1670	0	997	60	28 -104
N-Nitroso-Di-n-propylamine	1670	0	1450	87	41 -126
1,2,4-Trichlorobenzene	1670	0	982	59	38 -107
Acenaphthene	1670	0	1050	63	31 -137
2,4-Dinitrotoluene	1670	0	1400	84	28 -89
Pyrene	1670	0	1210	73	35 -142

Column to be used to flag recovery value with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 6 outside limits

COMMENTS:

3D
SOIL SEMIVOLATILE BLANK SPIKE RECOVERY

Lab Name: Recra.LabNet

Contract: 0985-01-01

Case No.: TNUHANFORD B99-029 H1129

RFW Lot No.: 0011L193

BLANK Spike - Sample No.: SBLKJPLE1587-MB1

Level: (low/med) LOW

COMPOUND	SPIKE ADDED UG/KG	SAMPLE CONCENTRATION UG/KG	BS CONCENTRATION UG/KG	BS % REC #	QC LIMITS REC
1,4-Dichlorobenzene	1670	0	660	40	28 -104
N-Nitroso-Di-n-propylamine	1670	0	795	48	41 -126
1,2,4-Trichlorobenzene	1670	0	683	41	38 -107
Acenaphthene	1670	0	777	47	31 -137
2,4-Dinitrotoluene	1670	0	803	48	28 -89
Pyrene	1670	0	980	59	35 -142

Column to be used to flag recovery value with an asterisk

* Values outside of QC limits

Spike Recovery: 0 out of 6 outside limits

COMMENTS:

RECRA LabNet Use Only

00111193

Custody Transfer Record/Lab Work Request

Page 1 of 1



FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

ALL

Client: Tru-Hanford 899-029

Est. Final Proj. Sampling Date: _____

Project #: 10985-001-001-999900

Project Contact/Phone #: _____

RECRA Project Manager: OS

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 11-8-00 Date Due: 12-8-00

Account #: _____

Matrix QC Chosen (✓)	Matrix	Date Collected	Time Collected	RECRA LabNet Use Only																
				MS	MSD	24X	25X	ITCLP	Met ①	ICR03										
So	11/2/00	1030	✓	✓																
↓	↓	1056	✓	✓																
L	*	-																		
↓	↓	-																		

Special Instructions: Sas 899-029

Run Matrix QC

DATE/REVISIONS:

* See lab chron

Met ① 2 AS, Ba, Cd, Cr, Pb, Se, Ag, Sb, Be, Ni

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
FedEx	Thoppel	11-8-00	1015

COMPOSITE

ORIGINAL

Discrepancies Between Samples Labels and COC Record? Y or N (N)

NOTES: 11235-10953034 001

RECRA LabNet Use Only	
Samples were: 1) Shipped <u>(N)</u> or Hand Delivered <u>(N)</u> Airbill # <u>See below</u> 2) Ambient or <u>(C)</u> Chilled 3) Received in Good Condition <u>(Y)</u> or N 4) Labels Indicate Properly Preserved <u>(Y)</u> or N 5) Received Within Holding Times <u>(Y)</u> or N	COC Tape was: 1) Present on Outer Package <u>(Y)</u> or N 2) Unbroken on Outer Package <u>(Y)</u> or N 3) Present on Sample <u>(Y)</u> or N 4) Unbroken on Sample <u>(Y)</u> or N COC Record Present Upon Sample Rec'd <u>(Y)</u> or N Cooler Temp <u>4</u> °C

00116193

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-029-61		Page 1 of 1		
Collector Fahlberg	Company Contact T Pickett	Telephone No. 373-4630		Project Coordinator IRENT SJ		Price Code 9N		Data Turnaround 45 Days		
Project Designation 100-KR-4 Pump & Treat - Resin Sampling		Sampling Location 100 KR4		SAF No. 1399-029		Air Quality				
Ice Chest No. GWS-142 (10ft)		Field Logbook No. EL 1517-1		COA RI0KR4C570		Method of Shipment Fed Ex				
Shipped To FMA/RECRA 11/6/00		Offsite Property No. A010004		Bill of Lading/Air Bill No. 42357953-0360						
POSSIBLE SAMPLE HAZARDS/REMARKS Historical DATA indicates that Samples are < 2000 pCi/g		Preservation	None	None	None	None	B Cool 4C	A Cool 4C	D None	C None
		Type of Container	aG	aG	aG	aG	aG	aG	aG	aG
		No. of Container(s)	1	1	1	1	1	1	1	1
		Volume	60mL	60mL	60mL	120mL	250mL	250mL	250mL	500mL
Special Handling and/or Storage		Isotopic Uranium	Plutonium-239, 240 - Total	Technetium-99	Tritium - H3	Semi-VOA - 8270A (TCL) (Bis(2-ethylhexyl) phthalate)	See item (1) in Special Instructions	IC Anions - 1000 (Nitrate)	See item (2) in Special Instructions	
SAMPLE ANALYSIS										
Sample No.	Matrix *	Sample Date	Sample Time							
B10NW1	OTHER SOLID	11/6/00	1030				X	X	X	X
B10NW2	OTHER SOLID	11/6/00	1050				X	X	X	X
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS						
Relinquished By: R. Fahlberg Date/Time: 11/6/00 1300 Received By: R. Fahlberg Date/Time: 11/6/00 1300 Relinquished By: R. Fahlberg Date/Time: 11/6/00 0830 Received By: R. Fahlberg Date/Time: 11/6/00 0830 Relinquished By: R. Fahlberg Date/Time: 11/7/00 0830 Received By: R. Fahlberg Date/Time: 11/7/00 0830 Relinquished By: R. Fahlberg Date/Time: 11/7/00 0830 Received By: R. Fahlberg Date/Time: 11/7/00 0830 Relinquished By: R. Fahlberg Date/Time: 11/7/00 1015 Received By: R. Fahlberg Date/Time: 11/7/00 1015 Relinquished By: R. Fahlberg Date/Time: 11/7/00 1015 Received By: R. Fahlberg Date/Time: 11/7/00 1015				** Historical data indicates that samples are less than 2000 pCi total activity. (1) VOA - 8260A (TCL) (Chloroform, Methylenechloride); VOA - 8260A (Add-On) (Trichloromonofluoromethane) (2) Metals by ICP (ICP) - 1311.6010 (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Metals by ICP (ICP) Add-on - 1311.6010 (Antimony, Beryllium, Nickel) Samples stored in Ref. # 2B at the 3728 Shipping Facility on 11/6/00 Collector not available to relinquish samples on 11/7/00 for shipment.						
LABORATORY SECTION				Matrix *						
Received By				S - Soil SF - Sediment Sd - Solid S - Sludge W - Water O - Oil A - Air DS - Drum Solids DI - Drum Liquids T - Tissue W - Waste L - Liquid V - Vegetation X - Other						
FINAL SAMPLE DISPOSITION				Disposal Method						
Disposal Method				Disposed By						
Disposed By				Date/Time						

Recre LabNet - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B99-029 H1129

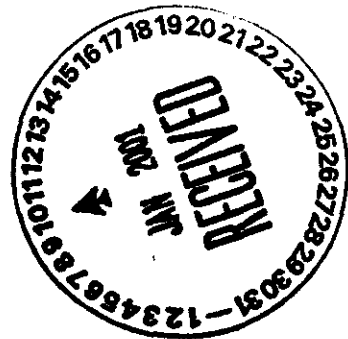
DATE RECEIVED: 11/08/00

RFW LOT # :0011L193

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B10NW1	001	SO	00LVH486	11/06/00	N/A	11/11/00
B10NW1	001 R1	SO	00LVH487	11/06/00	N/A	11/13/00
B10NW2	002	SO	00LVH486	11/06/00	N/A	11/11/00
B10NW2	002 MS	SO	00LVH486	11/06/00	N/A	11/11/00
B10NW2	002 MSD	SO	00LVH486	11/06/00	N/A	11/11/00

LAB QC:

VBLKBW	MB1	S	00LVH486	N/A	N/A	11/11/00
VBLKBW	MB1 BS	S	00LVH486	N/A	N/A	11/11/00
VBLKBX	MB1	S	00LVH487	N/A	N/A	11/13/00
VBLKBX	MB1 BS	S	00LVH487	N/A	N/A	11/13/00



**Recra LabNet Philadelphia
Analytical Report**

Client: TNU-HANFORD B99-029
RFW #: 0011L193
SDG/SAF #: H1129/B99-029

W.O. #: 10985-001-001-9999-00
Date Received: 11-08-2000

GC/MS VOLATILE

Two (2) solid samples were collected on 11-06-2000.

The samples and their associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260A for client specified Volatile target compounds on 11-11,13-2000.


The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. Samples were analyzed within required holding time.
3. Two (2) of twenty-seven (27) surrogate recoveries were outside EPA QC limits. The initial analysis fulfills the reanalysis requirement for samples B10NW2 MS and B10NW2 MSD.
4. All matrix spike recoveries were within EPA QC limits.

All blank spike recoveries were within EPA QC limits.

The target compound is not included in the spiking solution. (CLP spike recoveries have been reported on the Form 3.)

5. The method blanks contained the common laboratory contaminant Methylene Chloride at levels less than 4x the CRQL.
6. Internal standard area criteria were not met for the samples. The analysis of associated matrix spike samples fulfills the reanalysis requirement of sample B10NW2. Other sample B10NW1 was reanalyzed on 11-13-2000 and reported.
7. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."


J. Michael Taylor
V.P./Laboratory General Manager
Lionville Laboratory

01-03-01
Date

soni\group\data\voa\tnu-hanford-11-193.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

GLOSSARY OF VOA DATA

DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.



GLOSSARY OF VOA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.



h

Report Date: 12/20/00 15:52

Client: TNUHANFORD B99-029 H1129 Work Order: 10985001001 Page: 1a

	Cust ID:	B10NW1	B10NW1	B10NW2	B10NW2	B10NW2	B10NW2	VBLKBW
Sample	RFW#:	001	001	002	002 MS	002 MSD	002 MSD	00LVH486-MB1
Information	Matrix:	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOIL
	D.F.:	1.06	1.09	1.11	1.02	1.09	1.09	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
			REP					
	1,2-Dichloroethane-d4	94 %	92 %	95 %	101 %	105 %	105 %	89 %
Surrogate	Toluene-d8	140 %	139 %	133 %	141 * %	146 * %	146 * %	94 %
Recovery	Bromofluorobenzene	75 %	74 %	80 %	74 %	78 %	78 %	89 %
		fl	fl	fl	fl	fl	fl	fl
	Trichlorofluoromethane	3 J	12 U	3 J	3 J	3 J	3 J	5 U
	Methylene Chloride	47 B	30 B	42 B	46 B	53 B	53 B	16
	Chloroform	8 J	5 J	10	12	12	12	5 U

[illegible]

*= Outside of EPA CLP QC limits.

3B
SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Recra.LabNet.Philadelphia Contract: 10985-001-001-9999-00

Lab Code: RECRA Case No.: SAS No.: SDG No.: 11L193

Matrix Spike - EPA Sample No.: B10NW2 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====	=====
1,1-Dichloroethene	108.16	0.0000	105.63	98	59-172
Trichloroethene	108.16	0.0000	100.75	93	62-137
Benzene	108.16	0.0000	106.66	99	66-142
Toluene	108.16	0.0000	145.33	134	59-139
Chlorobenzene	108.16	0.0000	103.75	96	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD REC.
=====	=====	=====	=====	=====	=====
1,1-Dichloroethene	115.22	114.86	100	2	22 59-172
Trichloroethene	115.22	115.39	100	7	24 62-137
Benzene	115.22	119.49	104	5	21 66-142
Toluene	115.22	160.00	139	4	21 59-139
Chlorobenzene	115.22	115.48	100	4	21 60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS:

3B
SOIL VOLATILE BLANK SPIKE RECOVERY

Lab Name: Recra.LabNet.Philadelphia Contract: 10985-001-001-9999-00

Lab Code: RECRA Case No.: SAS No.: SDG No.: 11L193

Matrix Spike - EPA Sample No.: VBLKBW Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	BLANK CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====	=====
1,1-Dichloroethene	50.000	0.0000	51.406	103	59-172
Trichloroethene	50.000	0.0000	47.126	94	62-137
Benzene	50.000	0.0000	46.302	93	66-142
Toluene	50.000	0.0000	50.047	100	59-139
Chlorobenzene	50.000	0.0000	50.462	101	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS:

3B
SOIL VOLATILE BLANK SPIKE RECOVERY

Lab Name: Recra.LabNet.Philadelphia Contract: 10985-001-001-9999-00

Lab Code: RECRA Case No.: SAS No.: SDG No.: 11L193

Matrix Spike - EPA Sample No.: VBLKBX Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	BLANK CONCENTRATION (ug/Kg)	BS CONCENTRATION (ug/Kg)	BS % REC #	QC. LIMITS REC.
=====	=====	=====	=====	=====	=====
1,1-Dichloroethene	50.000	0.0000	45.703	91	59-172
Trichloroethene	50.000	0.0000	43.664	87	62-137
Benzene	50.000	0.0000	46.671	93	66-142
Toluene	50.000	0.0000	48.484	97	59-139
Chlorobenzene	50.000	0.0000	48.407	97	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 0 out of 5 outside limits

COMMENTS: _____

RECRA LabNet Use Only

0011193

Custody Transfer Record/Lab Work Request Page 1 of 1



FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client Tru-Hanford 899-029

Est. Final Proj. Sampling Date _____

Project # 10985-001-001-999900

Project Contact/Phone # _____

RECRA Project Manager OS

QC Spec Del Std TAT 30 day

Date Rec'd 11-8-00 Date Due 12-8-00

Account # _____

Refrigerator #	A		B		C		D	
#/Type Container	Liquid							
	Solid	1PG	1PG			1PG		1PG
Volume	Liquid							
	Solid	250	250			500		250
Preservatives		-	-			-		-
ANALYSES REQUESTED	ORGANIC					INORG		
	VOA	BNA	Pes/PCB	Herb		Metal	CN	

ACCOUNT #												RECRA LabNet Use Only									
MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	CUTX	CUTSX						ITCLP	MET	ICR03				
			MS	MSD																	
	001	Biorw1			So	11/2/00	1030	✓	✓						✓		✓				
	002	1 2			↓	↓	1056	✓	✓						✓		✓				
	003	1 1 tclp of 001			L	*	-									✓					
	004	1 2 1 002			L	1	-									✓					

Special Instructions: Sa8 899-029

Run Matrix QC

DATE/REVISIONS:

* 1. See lab chron

met ① 2. AS, Ba, Cd, Cr, Pb, Se, Ag, Sb, Be, Ni

3. _____

4. _____

5. _____

6. _____

RECRA LabNet Use Only

Samples were:

1) Shipped ☒ or Hand Delivered _____

Airbill # See below

2) Ambient or Chilled

3) Received in Good Condition ☒ or N

4) Labels Indicate Properly Preserved ☒ or N

5) Received Within Holding Times ☒ or N

COC Tape was:

1) Present on Outer Package ☒ or N

2) Unbroken on Outer Package ☒ or N

3) Present on Sample ☒ or N

4) Unbroken on Sample ☒ or N

COC Record Present Upon Sample Rec'l ☒ or N

Cooler Temp 4 °C

Relinquished by	Received by	Date	Time
FedEx	Thoppel	11-8-00	1015

Relinquished by	Received by	Date	Time
COMPOSITE	ORIGINAL		

Discrepancies Between Samples Labels and COC Record? Y or ☒ N

NOTES: 4235795303600

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						B99-029-61		Page 1 of 1	
Collector Fahlberg		Company Contact T Pickett		Telephone No. 373-4630		Project Coordinator IRENT, SJ		Price Code 9N		Data Turnaround 45 Days	
Project Designation 100-KR-4 Pump & Treat - Resin Sampling		Sampling Location 100 KR4		SAF No. B99-029		Air Quality					
Ice Chest No. GWS-142 (10ft)		Field Logbook No. EL 1517-1		COA R10KR4C570		Method of Shipment Fed Ex					
Shipped To FMA/RECRA 11/6/00		Offsite Property No. A010044		Bill of Lading/Air Bill No. 2357953-0360							
POSSIBLE SAMPLE HAZARDS/REMARKS Historical DATA indicates that Samples are < 2000 pCi/g		Preservation	None	None	None	None	B Cool 4C	A Cool 4C	D None	C None	
		Type of Container	aG	aG	aG	aG	aG	aG	aG	aG	
		No. of Container(s)	1	1	1	1	1	1	1	1	
		Volume	60mL	60mL	60mL	120mL	250mL	250mL	250mL	500mL	
Special Handling and/or Storage				Isotopic Uranium	Strontium-90 - Total Sr	Technetium-99	Tritium - H3	Semi-VOA - 8270A (ICL) (Bis(2-ethylhexyl) phthalate)	See item (1) in Special Instructions	IC Anions - 1000 (Nitrate)	See item (2) in Special Instructions
SAMPLE ANALYSIS											
Sample No.	Matrix *	Sample Date	Sample Time								
B10NW1	OTHER SOLID	11/6/00	1030					X	X	X	X
B10NW2	OTHER SOLID	11/6/00	1050					X	X	X	X
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *			
Relinquished By R. Fahlberg 11/6/00 1300		Received By R. Fahlberg 11/6/00 1300		** Historical data indicates that samples are less than 2000 pCi total activity. (1) VOA - 8260A (ICL) (Chloroform, Methylenechloride); VOA - 8260A (Add-On) (Trichloromonofluoromethane) (2) Metals by ICP (ICLP) - 1311.6010 (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Metals by ICP (ICLP) Add-on - 1311/6010 (Antimony, Beryllium, Nickel)				S - Soil SF - Sediment St - Solid S - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids T - Tissue WL - Waste L - Liquid V - Vegetation X - Other			
Relinquished By R. Fahlberg 11/6/00 0830		Received By R. Fahlberg 11/6/00 0830									
Relinquished By R. Fahlberg 11/7/00 0830		Received By R. Fahlberg 11/7/00 0830									
Relinquished By R. Fahlberg 11/7/00 0830		Received By R. Fahlberg 11/7/00 0830									
Relinquished By FedEx 11/8/00 1015		Received By Thompson 11/8/00 1015		Samples stored in Ref. # 2B at the 3728 Shipping Facility on 11/6/00 Collector not available to relinquish samples on 11/7/00 for shipment..							
Relinquished By		Received By									
Relinquished By		Received By									
LABORATORY SECTION		Received By		Title		Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time					